

REMARKS

Applicants appreciate the thorough examination of the present application that is reflected in the Official Action of September 23, 2004. In response, the specification has been amended at Page 10, line 12, to provide the missing U.S. patent number. Moreover, the independent claims have been amended to recite "transferring data" rather than "improving data transfer", to eliminate this superfluous recitation. Claim 7 has also been amended to provide proper antecedent basis for "transmitting" and Claims 14, 17 and 19 have been amended to eliminate "means plus function" language in the computer program product claims. All of the above-described amendments are matters of form and are unrelated to patentability, so that the entire range of equivalents is available for the amended claims. Claims 20-22 have been added, which correspond to dependent Claim 4. Moreover, service Claims 23 and 24 have been added consistent with the description at Page 8, lines 4-6 of the specification. Applicants respectfully submit that all of the pending claims are patentable for the reasons that now will be described.

Claims 1-3, 5-9 and 11-13 Are Patentable Over U.S. Patent 4,872,159 to Hemmady et al.

As an initial matter, Applicants wish to note that independent Claims 1, 5, 8 and 11 all recite a virtual network in the elements or steps thereof. In sharp contrast, Hemmady et al. does not relate to a virtual network. Rather, as noted in the first sentence of the Hemmady et al. Abstract:

A high capacity metropolitan area network (MAN) is described. Moreover, the portion of Hemmady et al. cited by the Official Action, as describing a virtual network (i.e., Column 2, lines 31-34), states:

In the data switching stage, data packets destined for a common output of the circuit switching stage are chained so that they may be all transmitted together once a connection has been set up in the circuit switch.

Again, this passage does not describe or suggest a virtual network. Accordingly, Hemmady et al. is not even analogous art.

Moreover, the remaining recitations of independent Claims 1, 5, 8 and 11 are not described by Hemmady et al. In particular, the Official Action states, at Page 2, that Hemmady et al. describes:

Hub(s) that include a plurality of data switching modules followed by a stage of circuit switching (network addressing)....

Indeed, as noted in the first sentence of the "SOLUTION" section of Hemmady et al. (Column 2, lines 27-31):

The above problems are solved and an advance is made over the prior art in accordance with the principles of this invention wherein a data network comprises a hub comprising a stage of data switching followed by a stage of circuit switching.

Applicants respectfully submit, however, that a data network that comprises a hub comprising a stage of data switching followed by a stage of circuit switching does not describe or suggest:

allocating one or more outbound packing buffers for each of a plurality of particular network addresses...,

as recited in Claim 1, or:

allocating one or more outbound packing buffers for each of a plurality of first network addresses, wherein each outbound packing buffer is logically divided into a plurality of frames, the frames being associated with second network addresses...,

as recited in Claim 5, or in their analogous system Claims 8 and 11.

The Official Action also cites Hemmady et al. Column 9, line 20, which simply states "buffering of network transactions". However, these four words do not describe:

packing outbound data packets into appropriate ones of the outbound packing buffers, according to a network address within a header of each outbound data packet...,

as recited in Claim 1, or:

packing outbound data packets into selected frames of selected ones of the outbound packing buffers, when a header of the outbound data packet to be packed specifies the first network address and the second network address which correspond to the selected outbound packing buffer and the selected frame...,

as recited in Claim 5, or in their analogous system Claims 8 and 11. Finally, the Official Action cites Hemmady et al. Column 7, lines 54-60, which states:

By way of contrast, a receive buffer memory **90** must exist to receive information from the network. In this case entire EUS transactions may sometimes be stored until they can be transferred into End User System memory. The receive buffer must be capable of dynamic buffer chaining. Partial EUS transactions may arrive concurrently in an interleaved fashion.

This passage does not describe or suggest:

transmitting each outbound packing buffer onto the virtual network in a single transmission operation...,

as recited in Claims 1 and 5, or the analogous recitations of system Claims 8 and 11. Accordingly, Applicants respectfully submit that Hemmady et al. is not even analogous prior art, and that the passages cited in the Official Action simply do not describe the recitations of independent Claims 1, 5, 8 or 11. Nor would it be obvious to provide these recitations based on the high capacity metropolitan area network of Hemmady et al. Accordingly, independent Claims 1, 5, 8 and 11 are patentable over Hemmady et al. Moreover, dependent Claims 2-3, 6-7, 9, 12-13 and 23-24 are patentable at least by virtue of the patentability of the independent claims from which they depend.

Claims 14-19 Are Patentable Over Hemmady et al.

Independent Claims 14 and 17 are computer program product analogs of Claims 1 and 5. These claims are patentable over Hemmady et al. for at least the reasons that were described above in connection with independent Claims 1, 5, 8 and 11. This analysis will not be repeated for the sake of brevity. Moreover, dependent Claims 15-16 and 18-19 are patentable at least per the patentability of the independent claims from which they depend.

Dependent Claims 4, 10 and 20-22 Are Patentable Over Hemmady et al. In View of U.S. Patent 6,141,738 to Munter et al.

These claims recite that the "virtual network is defined by a plurality of logical partitions within a single computing device". As noted in the present application, for example at Page 3, lines 19-21:

However, systems have been developed in recent years in which the packet transmission process is optimized by memory-to-

memory exchange rather than transmitting the packets onto an actual communications network

Moreover, as noted at Page 5, line 20-Page 6, line 6 of the present application:

If the sending host packs multiple packets into a single packing buffer, as in the prior art LAN approach described above, then the HiperSockets driver on the virtual LAN must parse through each packet and evaluate contents of its packet header to determine the correct destination for delivering the packet. While this approach is satisfactory from a functional perspective, it is inefficient because there is actually no need for the adapter to build any MAC headers for the outbound packets which are to be transmitted on the virtual LAN: no network devices will be routing these packets among different machines, and thus there is no MAC address to be used.

In rejecting Claims 4 and 10, the Official Action concedes that Hemmady et al. "fails to specifically teach a virtual network defined by a plurality of logical partitions within a single computing device" (Official Action, Page 5). However, Applicants respectfully submit Hemmady et al. fails to teach much more, because Hemmady et al. relates to a high capacity metropolitan area network. As noted in the Hemmady et al. Abstract:

A high capacity metropolitan area network (MAN) is described. Data traffic from users is connected to data concentrators at the edge of the network, and is transmitted over fiber optic data links to a hub where the data is switched. The hub includes a plurality of data switching modules, each having a control means, and each connected to a distributed control space division switch. Advantageously, the data switching modules, whose inputs are connected to the concentrators, perform all checking and routing functions, while the 1024×1024 maximum size space division switch, whose outputs are connected to the concentrators, provides a large fan-out distribution network for reaching many concentrators from each data switching module.

Thus, Hemmady et al. describes a large scale network including large numbers of computing devices that cover a metropolitan area, and teaches away from "a virtual network that is defined by a plurality of logical partitions within a single computing device", as recited in Claims 4, 10 and 20-22.

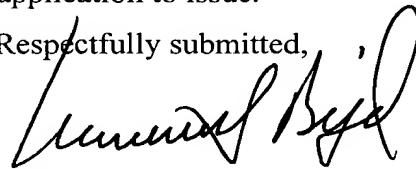
Nor does Munter et al. provide the missing teaching, because Munter et al. relates to an "*Address Translation Method and System Having a Forwarding Table Data Structure*", as noted in the Munter et al. title. Munter et al. does not appear to

describe or suggest virtual networks defined by a plurality of logical partitions within a single computing device. In particular, the passages cited by the Official Action in Paragraph 10 of Page 5 do not appear to contain any description or suggestion of virtual private networks. Accordingly, even if Munter et al.'s "*Address Translation Method and System Having a Forwarding Table Data Structure*" was combined with Hemmady et al.'s "*Packet Network Architecture for Providing Rapid Response Time*", the recitations of Claims 4, 10, 20 or 21 would not be described or suggested. Accordingly, these claims are independently patentable.

Conclusion

Applicants again appreciate the thorough examination of the present application, and the citation of Hemmady et al. and Munter et al. Although these references relate to networking, Applicants have shown that the recitations of the pending claims are neither described nor suggested by these references or their combination. Accordingly, Applicants respectfully request withdrawal of the outstanding rejection and passing the application to issue.

Respectfully submitted,



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